



Richmond Area James River

Total Maximum Daily Load (TMDL) Development for Bacteria

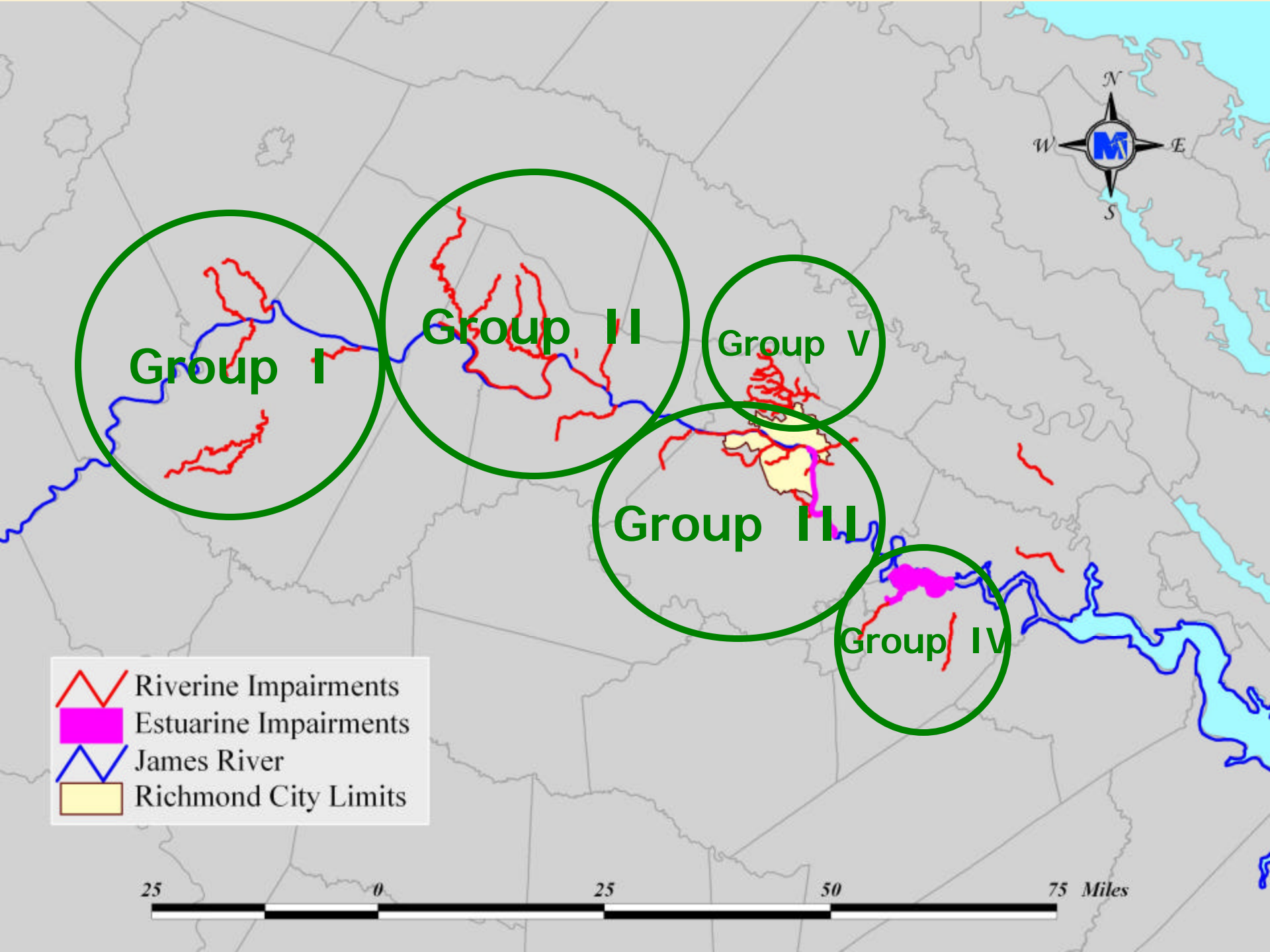
**First Public Meeting
August 2, 2006**



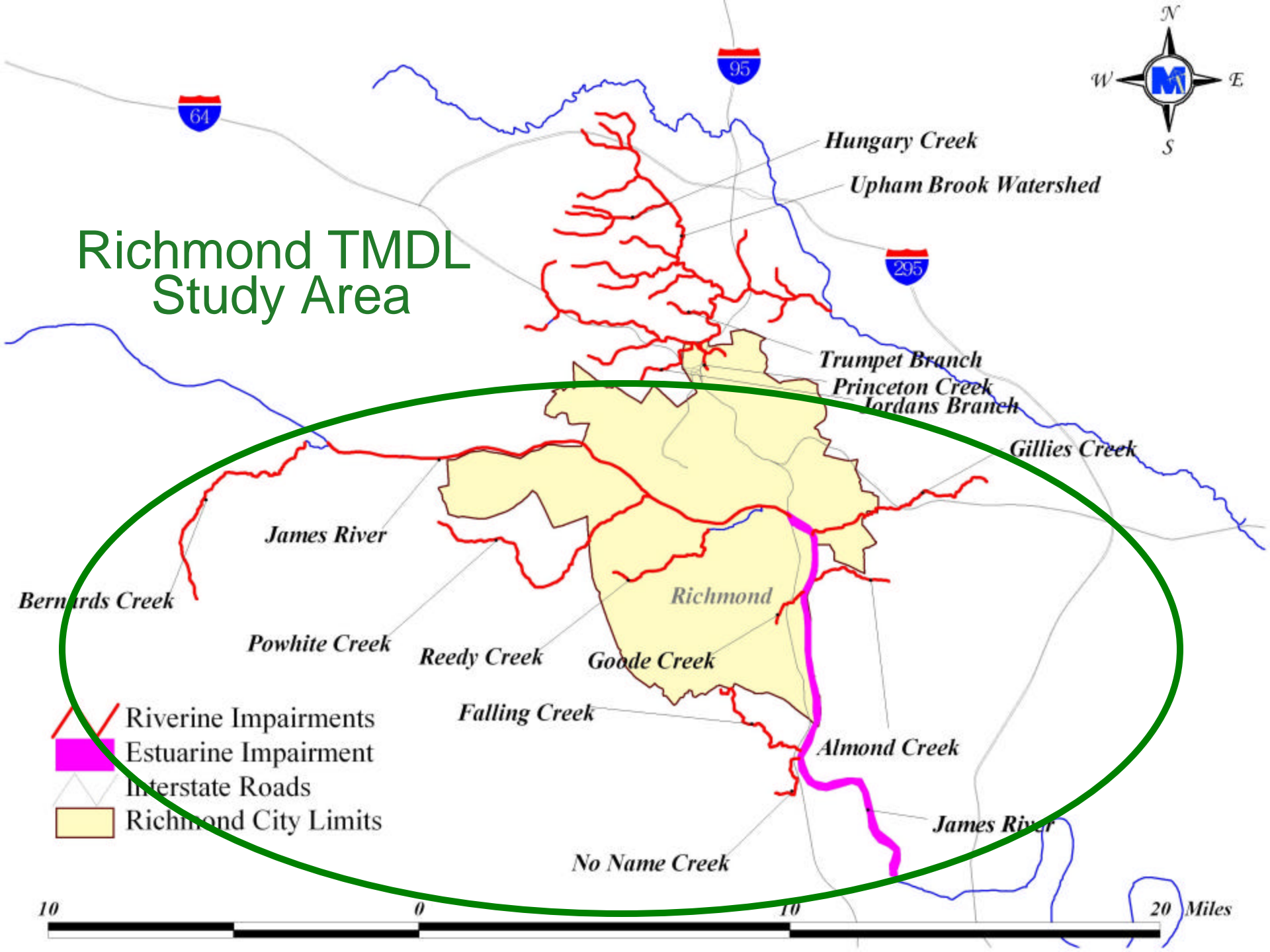
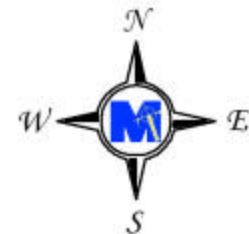


Introduction

- **Chris French (DEQ)** - **TMDL Overview**
- **Jim Kern (MapTech)** - **Technical Approach for the Bacterial TMDL**
- **Charles Martin (DEQ)** - **Bacterial Considerations in Upcoming Triennial Review**
- **Questions**



Richmond TMDL Study Area





What is a TMDL?

- **TMDL = TOTAL MAXIMUM DAILY LOAD**
- **TMDL = Amount of pollution a waterbody can handle without hurting the stream**
- **A TMDL considers all forms of pollution**
 - point sources (from a specific location like a pipe)
 - non-point sources (overland runoff from rain or snowmelt with no defined source)
 - natural sources like wildlife



Why are TMDLs needed?

“The primary mission of the TMDL program is to protect public health and the health of impaired aquatic ecosystems by ensuring attainment of water quality standards, including beneficial uses.” (US EPA, 1998)



Legal Basis for TMDLs

- **TMDLs required by Federal and State law**
 - **1972 Clean Water Act (CWA), Section 303(d)**
 - **1997 Water Quality Monitoring, Information and Restoration Act (WQMIRA)**
- **CWA and WQMIRA require:**
 - **Water sampling**
 - **Periodic assessments**
 - **Listing of impaired waters (that violate water quality standards)**
 - **TMDL development for impaired waters**
 - **Implementation plans and follow up sampling**



More Legal Basis for TMDLs

- **There was a 1998 lawsuit filed by the American Canoe Association and the American Littoral Society against EPA for failure to comply with CWA §303(d) in Virginia because not enough TMDLs were being done. TMDLs have always been in the CWA, but few states were doing them.**
- **A 1999 Consent Decree from the lawsuit requires EPA and Virginia to complete 636 TMDLs by 2010**



The TMDL Process in VA

- **Three Step TMDL Process in VA**
 - **TMDL Development (Find the source of the pollutant & determine the reduction needed)**
 - **Implementation Plan Development (Identify conservation measures to fix the problem. Conservation measures are often called Best Management Practices or BMPs.)**
 - **Implement the BMPs and sample to see improvement.**

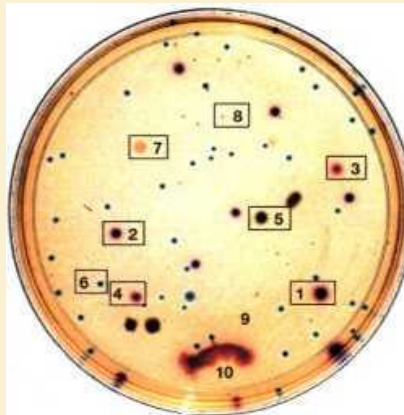


Water Quality Standards

- **Standards** are regulations based on federal and state law that set numeric (number) and narrative (text) limits on pollutants
- **Standards protect 6 beneficial uses of streams:**
 - *Primary Contact (Swimming)*
 - Aquatic life
 - Fish consumption
 - Public water supply
 - Shellfish consumption
 - Wildlife
- **Listing of Impaired Waters and TMDLs are based on standards**

Pollutant of Concern: Bacteria

- **Indicator** of the Potential Presence of Pathogens in Water Bodies
- **Bacteria** Present in the Intestines of Warm Blooded Animals





Primary Contact Criteria

| Indicator Organism | | Status | Instantaneous Maximum (cfu/100mL) | Geometric Mean (cfu/100mL) |
|--------------------|--|---------|-----------------------------------|----------------------------|
| Fecal Coliform | | Old | 1000 | 200 |
| Fecal Coliform | | Interim | 400 | 200 |
| E. coli | | New | 235 | 126 |
| Enterococci | | New | 104 | 35 |

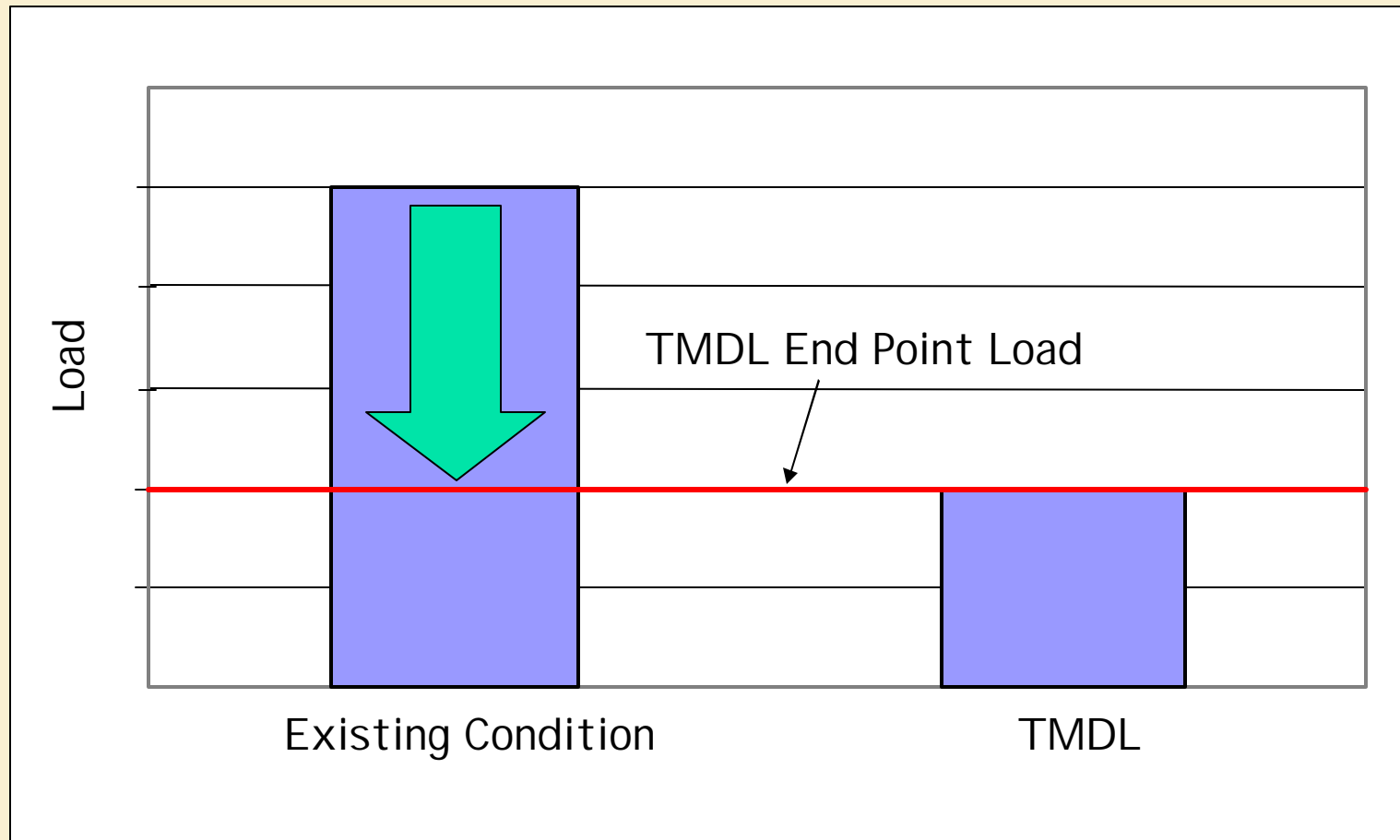
- Changes went into effect on January 15, 2003
- Both New *E. coli* and Interim Fecal Coliform criteria apply
- Fecal coliform criteria will be phased out entirely once 12 *E. coli* samples have been collected, or after June 30, 2008



The 1st Step: TMDL Development

- ☑ **Get to know the watershed**
 - ☑ Gather and analyze data
 - ☑ Involve stakeholders and public in verifying existing data and collecting additional data
 - Use computer models to develop TMDL
- **Conduct an initial public meeting (with a 30 day comment period)**
- **Develop a draft TMDL**
- **Conduct an additional TAC meeting, a final public meeting and release a draft TMDL report (with another 30 day comment period)**
- **Send final TMDL report to EPA and State Water Control Board for approval**

An Example TMDL



Reducing existing bacteria load to the TMDL end point load is expected to restore water quality.



Role of the TAC Committee

- **Help verify our data**
- **Direct us to other data sources useful to this effort**
- **Provide feedback - Questions & Comments**
- **Let others know about this effort and ask them to participate**
- **Provide written comments during the first 30 day public comment period**
- **Provide feedback at future meetings**
- **Actively participate in implementation efforts**

Questions?

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